

CLAIMS

1. A method for generating signals that can be used for accurately determining position comprising:

- 5 a.) generating correction data, said correction data adapted to enable properly equipped position determination systems to accurately determine position;
- b.) modulating said correction data to a designated frequency so as to produce a first signal;
- 10 c.) generating second signal at a radio station;
- d.) coupling said first signal and said second signal to a diplexer;
- e.) diplexing said first signal and said second signal; and
- f.) coupling said diplexed first signal and said diplexed second signal to the antenna of said radio station such that said diplexed first signal and said diplexed second signal are transmitted from said antenna.

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2. The method for generating signals that can be used for accurately determining position of Claim 1 wherein said radio station is an existing AM radio station.

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3. The method for generating signals that can be used for accurately determining position of Claim 1 wherein said first signal is modulated to a frequency of approximately 300 kilohertz.

4. The method for generating signals that can be used for accurately determining position of Claim 1 wherein said first signal is modulated to a frequency from 200 kilohertz to 400 kilohertz.

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5. The method for generating signals that can be used for accurately determining position of Claim 1 wherein said first signal is transmitted at a power level of 1 kilowatt.

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6. The method for generating signals that can be used for accurately determining position of Claim 1 wherein said correction data is encrypted.

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7. The method for generating signals that can be used for accurately determining position of Claim 1 wherein step a) further comprises

a1) receiving position determining signals;

a2) determining the position indicated by said received position determining signals; and

a3) determining correction data using said determined position indicated by said received position determining signals and using the actual position of said radio station.

8. The method for generating signals that can be used for accurately determining position of Claim 1 wherein step a) further includes the steps of:

- a1) receiving position determination signals; and
- 5 a2) wherein said correction data includes carrier phase observable data obtained from said received position determining signals.

9. An apparatus for generating signals that can be used for accurately determining position comprising:

- 10 a) a beacon signal generator for generating a first signal that includes correction data; and
- b) a diplexer coupled to said beacon signal generator and adapted to be coupled to a radio signal transmitter that generates a second signal, said diplexer adapted to be coupled to an antenna for transmitting said first
- 15 signal and said second signal.

10. The apparatus of Claim 9 wherein said beacon signal generator generates correction data that is encrypted, said beacon signal generator adapted to generate an activation instruction and include said activation

20 instruction in said first signal, said activation instruction for indicating to a position determining system that said encrypted correction data is to be used for accurately determining position

11. The apparatus of Claim 10 wherein said first signal is modulated to a frequency of approximately 300 kHz.

12. The apparatus of Claim 10 wherein said first signal is  
5 modulated to a frequency from 200 kHz to 400KHz.

13. The apparatus of Claim 9 wherein said first signal is transmitted at a power level of 1 kilowatt.

10 14. The apparatus of Claim 9 wherein said beacon signal generator further includes:

a receiver for receiving position determination signals;

input means for receiving user input; and

a controller coupled to said receiver and coupled to said input means.

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15. The apparatus of Claim 14 wherein said beacon signal generator further comprises:

a transmitter operable to generate a signal in the 300 kilohertz band;

and

20 an antenna tuning unit coupled to said transmitter.

16. A method for accurately determining position comprising:

a) providing a position determination system that includes a receiver adapted to receive position determination signals and that includes a radio for receiving encrypted correction data;

5        b) determining position without using said encrypted correction data when no encrypted correction data signal is being received;

c) determining position without using said encrypted correction data when an encrypted correction data signal is being received and when an activation instruction has not been received; and

10        d) accurately determining position using said encrypted correction data when an encrypted correction data signal is received that includes an activation instruction.

17. The method for accurately determining position of Claim 16  
15 wherein the position determined in step d) is determined using differential global positioning system position determination methods.

18. The method for accurately determining position of Claim 16  
wherein the position determined in step d) is determined using real time  
20 kinematics position determination methods.

19. The method for accurately determining position of Claim 16 wherein said activation instruction includes an identification code unique to said position determination system.

5 20. The method for accurately determining position of Claim 16 wherein said radio receiver receives transmissions in the 300 kHz band.

21. The method for accurately determining position of Claim 16 wherein said position determination system receives position determining  
10 signals from satellites of the US global positioning system.

22. A position determination system comprising:  
a) a receiver adapted to receive position determination signals;  
b) a radio adapted to receive encrypted correction data signals, and  
15 c) a correction program coupled to said receiver and coupled to said radio, said correction program adapted to accurately determine position using said position determination signals and said encrypted correction data signals upon receiving an activation instruction included in said encrypted correction data signal.

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23. The position determination system of Claim 22 wherein said receiver determines position without using said encrypted correction data

when no encrypted correction data signal is being received, said receiver  
determining position without using said encrypted correction data when an  
encrypted correction data signal is being received and when an activation  
instruction has not been received, said correction program operable upon  
5 receiving an encrypted correction data signal that includes an activation  
instruction such that position is accurately determined using said encrypted  
correction data.

24. The position determination system of Claim 23 wherein said  
10 receiver is adapted to receive position determination signals from satellites of  
the US GPS.

25. A method for charging users for use of correction data  
comprising the steps of:

15 a) broadcasting a radio signal that includes correction data that is  
encrypted;

b) providing a position determination system that includes a radio for  
receiving said radio signal, said position determination system adapted to  
decrypt said encrypted correction data; and

20 c) including an activation instruction in said radio signal upon  
payment by a user for use of said correction data, said activation instruction

instructing said position determination system to accurately determine position using said encrypted correction data.

26. The method for charging users for use of correction data of

5 Claim 25 further comprising the step of:

d) allowing a user to use said correction data as long as said user pays for such use; and

e) including a deactivation instruction in said radio signal to instruct said position determination system to discontinue accurately determining

10 position using said encrypted correction data.

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